Discovery Ready for Middle-of-Night Launch on Ozone Mission

The Associated Press

April 5, 1993, Monday, AM cycle

Copyright 1993 Associated Press All Rights Reserved

Section: Domestic News

Length: 578 words

Byline: By MARCIA DUNN, AP Aerospace Writer

Dateline: CAPE CANAVERAL, Fla.

Body

Five astronauts boarded space shuttle Discovery late Monday night for a mission to study the thinning of the Earth's protective ozone layer.

Meteorologists gave 80 percent odds of good weather for the unusual middle-of-the-night launch, set for 1:32 a.m. EDT Tuesday. The main concern was high crosswinds.

The four men and one woman climbed into the cabin a few hours after NASA filled Discovery's external tank with more than a half-million gallons of fuel.

The eight-day flight is the second in a series of atmospheric research projects by NASA.

Scientists fear that the upper atmosphere's layer of ozone gas, a shield against dangerous ultraviolet rays, is being consumed by human-made pollutants and possibly volcanic gases.

The chief culprits are chlorofluorocarbons - chemicals used in air conditioners and refrigerators. CFCs, on the verge of being phased out, release chlorine atoms that wipe out ozone.

Based on measurements from the first research mission, flown by Atlantis last spring, scientists confirmed a 30 percent buildup of chlorine in the stratosphere since 1985, said William Townsend, deputy associate administrator of the Mission to Planet Earth program. He expected Discovery's flight to encounter even higher chlorine concentrations.

While a hole in the ozone over the Antarctic is fairly well understood, researchers are perplexed about the increasing loss of ozone over the Northern Hemisphere. No Arctic ozone hole exists - yet.

In February, Canadian scientists reported the lowest ozone levels ever recorded in that country over Edmonton, Alberta - about 25 percent below pre-1980s levels. And in March, the World Meteorological Organization said ozone levels were 9 percent to 20 percent below normal this winter over middle and upper latitudes of the Northern Hemisphere.

If heightened levels of ultraviolet radiation penetrate the atmosphere to Earth's surface, it could increase skin cancer and cataracts, weaken the human immune system, destroy ocean plankton and stunt plant growth.

A nighttime launch of Discovery was essential for catching sunrises at the northern latitudes, the best time for measuring ozone there. Only seven out of 53 shuttle launches have been at night.

Many measurements by three ozone instruments in Discovery's cargo bay were to coincide with observations by satellites.

The cargo bay also held four instruments to measure solar energy. Even small changes in the sun's energy output can affect Earth's climate and ozone concentrations.

More than 100 shuttle maneuvers were planned to point the instruments in the right directions. The cargo bay must face Earth during ozone measurements, but must be turned toward the sun for solar measurements.

The astronauts also were to release a spacecraft to study the solar wind and the sun's corona, and then retrieve it after two days.

NASA originally planned to fly an atmospheric research mission every year or so throughout an 11-year solar cycle, the period from one peak in solar activity to the next. But nothing has been scheduled beyond mission No. 3, targeted for fall 1994.

"After the completion of this mission … we will evaluate the science and take a hard look at our budget situation and what shuttle opportunities are available," Townsend said.

Only one other shuttle has gone into orbit so far in 1993, a year that was planned for eight flights. A main engine shutdown of Columbia three seconds before liftoff on March 22 pushed that science mission into late April.

End of Document